

mostly men with 87% of deaths (sex ratio M/F of 6.5). They were mostly adults between 30 and 70 years old (66%). 52% of deaths occurred during summertime (June–September), 34% occurred on weekends (Saturday and Sunday). Deaths most often occurred during mountain sports (45%), water sports (16%), aircraft non-motorized sports (11%), aircraft motorized sports (9%), mechanical sports (8%), hunting (4%) and other sports (6%).

**Conclusions** This work has provided an estimate of the number sports-related traumatic deaths in mainland France. Within the limits of the collection method, this number was 277 in 2016. The sports leading to the greatest number of deaths were middle and high mountain sports and water sports. Some cases may have not been collected because of technical difficulties of access to information media, but also when the victims died later after hospitalization, the fate of the victim is not always reported in the media. Similar work was conducted in prospective for the year 2017, in order to access the information media in real time. It will allow minimizing bias of disappearance of online information. Data collection on the circumstances of the accident which led to the death, the risk factors of the person and his environment, his/her level and his/her practice, etc. could provide information to elaborate prevention programs.

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#### P4-18

### What are the leading causes of hospitalized traumatic brain injuries according to age? Results of the French home and leisure injuries study in 2016

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**Introduction** Traumatic brain injury (TBI) is most often an acute event similar to other injuries. However, consequences of TBI can be very serious and affect all aspects of lives, including mental abilities and the personality of the victim. The impact on a person and his or her family can be devastating. The number of people suffering from TBI is difficult to assess accurately but can be approximate by the French medicalized information system program ("Programme de médicalisation des systèmes d'information" - PMSI): 130,000 patients are hospitalized for TBI each year in France. However, this database does not provide the causes of TBI yet, which is crucial for prevention purposes. The main objective of this work is to describe the causes of TBI induced by home and leisure injury (HLI) available in the "Enquête permanente sur les accidents de la vie courante" (EPAC) study.

**Methods** The French HLI permanent survey, EPAC, started in France in 1986 in a dozen of hospital emergency departments (ED). All patients admitted in ED for HLI are included. After consenting, patients are included and detailed information is collected: where, when, how, who, what product is involved as well as the chronology of the injury and the care given. In this study, TBI was defined as: a brain commotion, a head contusion, a skull fracture or other brain injuries. All patients recorded in 2016, responding to TBI criteria and hospitalized at least one day were selected. The individual causes of TBI described in the free text were analyzed and recoded. Since causes of TBI are very different according to age, they were described separately for: < 1, 1–5, 6–10, 11–14, 15–44, 45–64 and 65 years old and over.

**Results** In 2016, among the 119,260 patients victim of HLI, recorded in EPAC database, 2918 were hospitalized following their TBI (2.4%). They were more frequent among toddlers (7.3%) and elderly (8.6%) and less frequent among teenagers (0.7%) or young adults (0.8%). Among toddlers (< 1 year), all TBI were caused by falls: 19% from adult arms, 17% out of a bed, 16% out of a changing table, 14% out of a sofa, 9% out of a baby bouncer. Among young children (1–5 years), 10% were head impact and 90% falls: 19% were falls down stairs, 17% out of a bed, 10% out of a chair, 6% out of a bicycle, and 4% out of a sofa. Among 6–10 years, 19% were head impact and 81% falls: 11% out of a bicycle, 6% out of scooters, 5% were falls down stairs. Among 11–14 years, 18% were head impact and 82% falls: 16% out of bicycle, 13% out of scooters,

9% out of a horse. Among 15–44 years: 15% were head impact and 85% falls: 37% under the influence of alcohol, 14% in a pathologic context, 12% out of a bicycle, 8% out of a horse. Among 45–64 years, 2% were head impact and 98% falls: 43% under the influence of alcohol, 15% in a pathologic context, 8% were falls down stairs. Among 65 years and over 3% were head impact and 97% falls, causes are various and a lot of them are not well specified.

**Conclusions** TBI is a frequent reason of admission in ED, more particularly for young children and elderly. This study allows describing the causes of TBI, for which patients need hospitalization. Those causes are very different according to the age and need to be further explored to help building targeted prevention campaigns, more particularly for 65 years and over since causes are various and sometimes not well known.

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#### P4-19

### Effect of climate change on vector-borne diseases: Emerging and increasing incidence of zoonotic cutaneous leishmaniasis in Central Tunisia

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**Background** Tunisia is one of the most exposed countries to climate change. The increase in temperature and degree of moisture is a favorable condition for the development of vectors of several diseases. Thus, the zoonotic cutaneous leishmaniasis (ZCL), vector-borne disease highly sensitive to climatic conditions, has seen a dramatic resurgence in parts of the country as Sidi Bouzid, taking advantage of the warming in recent decades. The present work aims to assess the vulnerability of the region of Sidi Bouzid to climate change and to analyze the relationship between disease incidence and the bioclimatic variables. **Methods** This work refers to statistics recorded cases of ZCL in the governorate of Sidi Bouzid and daily observations of the indicators recorded in bioclimatic in the same area (ambient air temperature, rainfall, relative humidity and wind speed) during the period 1963–2016. Generalized additive model was used to investigate the effect of climate on the emergence and the incidence trend of this disease.

**Results** Annual cumulative rainfall showed a slight downward trend in Sidi Bouzid during the period 1963–2016. This trend was more pronounced during the period 1970–2016. The maximum and minimum annual average of temperatures showed a clear tendency to increase over the period 1963–2016. The annual average minimum temperature increased of 5.8 °C between 1963 (10.8 °C) and 2016 (16.6 °C). The increase in the average of daily maximum temperature was estimated at 0.04 °C/year. Monthly ZCL incidence was linked to mean temperature and relative humidity both lagged for 4 months ago and cumulative rainfall quantity for the last month.

**Conclusion** Emerging ZCL in Tunisia since the beginning of the 1980 decade is related to the increasing of temperature, to high humidity level and rainfall. Adaptation to climate change should consider this relationship to address ZCL mainly early warning system implementation.

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